Windthrow of Trees in the Walbran Valley

Complaint Investigation 020425

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The Investigation

The Complaint

In September 2002, a conservation group on Vancouver Island complained to the Board about windthrow of trees that had been retained on cutblock 7834 in the Walbran Valley. The complainant asserted that substantial windthrow of timber on the cutblock was the result of poor forest management. The complainant suspected the windthrow indicated that planning or enforcement of forest practices had been inadequate.

The Walbran Valley is southeast of Port Alberni in the Franklin operating area of Weyerhaeuser Company Limited's (the licensee) West Island Timberlands unit, which encompasses Tree Farm Licence 44. Old growth preservation and logging in the Walbran Valley have been a source of public controversy for years.

Cutblock 7834 straddles a ridgeline about 18 kilometres from the coast and about 3.5 kilometres north of Carmanah Walbran Provincial Park.

Background

The west coast of Vancouver Island is exposed to strong fall and winter winds from the Pacific Ocean. As a result, timber along that coast is susceptible to blowing down.

Wind is a natural disturbance factor in the exposed coastal forest. Trees blown down by the force of wind may have a positive or negative impact on forest resources, depending on the situation and the resource values considered.

Logging and road building create additional openings in the forest, exposing previously protected trees to the wind. In 1999, the licensee began to shift its harvesting approach from clearcutting to one that would retain a portion of the pre-harvest stand within harvested areas. Such retention can influence the potential for windthrow by exposing more timbered edges and greater numbers of dispersed standing trees to the wind. Trees remaining alongside and inside cutblocks may not have developed canopies or root systems that can resist the strong forces that wind can exert. Until the retained trees adjust, they may be particularly vulnerable to windthrow.

Cutblock 7834 was planned and harvested under a retention system. The Forest Practices Code (the Code) defines a retention system as "a silviculture system designed to retain individual trees or groups of trees to maintain structural diversity over the area of a cutblock for at least one rotation, and to leave more than half the total area of the cutblock within one tree height from the base of a tree or group of trees."

To meet the Code's definition, as well as its own objectives, the licensee planned to leave more than a dozen scattered group retention areas on the open slopes, ridgeline and along the edges of cutblock 7834, in addition to dispersed individual trees. The many retention patches included an in-block wildlife tree patch and two no-harvest riparian management areas. The retained area would total 7.2 hectares, while logging and roads would amount to 29.1 hectares of the total 37.6 hectares under prescription (another wildlife tree patch of about 1.3 hectares was located outside the cutblock boundary). The cutblock, as planned, would result in many standing trees left exposed to the wind.

Harvesting of cutblock 7834 was completed in September 2001. Soon after, fall and winter winds resulted in visible and substantive windthrow in the cutblock, which the complainant noticed during the spring of 2002. By September 2002, when Board staff first inspected cutblock 7834, several cutblock edges and group retention patches were largely windthrown, leaving only a few trees standing in those areas. Other edges and patches, including the patch containing the in-block wildlife tree patch, were largely windfirm. Board staff inspected the cutblock again in March 2003. Over that winter additional trees in the cutblock were windthrown, but there was no detectable damage to non-timber forest resources resulting from any of the windthrow.

Discussion

Forest Practices Planning

The Board considered whether forest practices planning was adequate. Adequate forest practices planning, in the Board's view, is planning that: considers the potential risk to forest resources; complies with the Code, considers public input (if applicable); and is likely to achieve the objectives of approved operational plans.

The licensee's approved silviculture prescription for cutblock 7834 specified a minimum 15 percent retention of group tree patches within the cutblock over a crop rotation (about 80 years). During harvest, the licensee retained in excess of 24 percent of group tree patches (7.2 hectares of 29.1 hectares logged or roaded), arranged as specified in its approved silviculture prescription. The intent was to retain structural elements and forest influences from the pre-harvest stand that would otherwise be absent in the re-established stand.

The cutblock was designed in 2000, in the second year of the licensee's transition from clearcutting to retention harvesting. At the time, the licensee planned cutblocks for harvest first and then assessed the need for any further treatments for windfirmness. The approved plan prescribed pruning of several stand edges, to be done after harvesting but before the windy fall and winter season. With harvesting completed by September 2001, pruning would be required by October 31, 2001.

During 2001, the licensee also set out to develop a new windthrow management strategy for its West Island Timberlands. The new strategy would aim to minimize the adverse consequences of windthrow rather than attempt to minimize the occurrence of windthrow. As part of its

developing strategy, the licensee reviewed all of its outstanding edge treatments that were due by the end of October 2001, including those for cutblock 7834. The licensee confirmed the need for edge pruning in some of its cutblocks, modified it in others and, in many, decided to remove the prescription.

For the timbered edges prescribed for pruning in cutblock 7834, the licensee decided that windthrow of up to 70 percent of the trees over the first tree length into the stand would be acceptable, although windthrow of only 15 percent was expected. That potential level of windthrow was acceptable to the licensee because cutblock 7834 had no identified non-timber forest resource values at risk. Based on the low consequence of windthrow on non-timber forest resources, the licensee decided that the previously approved pruning prescriptions for the cutblock were unnecessary. That meant the licensee would have to amend its approved silviculture prescription for the cutblock.

Throughout 2001, the licensee discussed its developing windthrow strategy with staff from the Ministry of Forests (MOF). Ministry staff was generally supportive, but approval was ultimately up to the district manager. Anticipating approval of its new strategy, the licensee decided not to carry out the pruning treatments it considered unnecessary in cutblock 7834. The October 2001 deadline to complete the prescribed pruning treatments passed by without the treatments being done.

A similar modification of prescribed treatments was planned for many of the licensee's other silviculture prescriptions. As a result, a large number of required prescription amendments, including the prescription for cutblock 7834, had to be prepared and processed. By December 2001, the licensee and MOF staff were discussing how best to batch the many amendments for submission and consideration. That process was not worked out until February 2002, after the district manager had accepted the new windthrow strategy as part of the licensee's 2001-2005 forest development plan. It is important to note that the licensee and ministry staff approached the windthrow management strategy and the amendments in a collaborative manner. Both parties anticipated that routine approval was forthcoming and acted in good faith based on that assumption.

In May 2002, the licensee re-assessed the edges of cutblock 7834 and confirmed, on the basis of consequence, that most of the treatments for the cutblock were indeed unnecessary, with the exception of one edge associated with some unstable terrain. The licensee treated that edge in September 2002, before the onset of that year's fall and winter winds. Also in September 2002, the licensee submitted the required amendment for cutblock 7834. The district manager approved the amendment in December 2002.

However, the fact remains that the Code does not contemplate retroactive approval of plans or amendments. Section 67 of the *Forest Practices Code of British Columbia Act* (the Act) requires that forest practices be conducted in accordance with approved operational plans. The prescribed October 2001 deadline for pruning in cutblock 7834 passed without the treatments being done. The licensee did not formally advise the MOF that it would not or could not complete the

pruning prescriptions as described in its approved plan for cutblock 7834. Neither did MOF authorize an extension to the previously approved pruning deadline. The result is that the licensee failed to comply with section 67 of the Act.

The licensee believes there was no non-compliance. It suggests that submission of its prescription amendment for cutblock 7834, nearly a year past the originally prescribed pruning deadline, constitutes a report to the district manager under section 36 of the Act. Section 36 carries no time limit, but requires a licensee to submit a report to the district manager in situations where the requirements of an approved silviculture prescription "cannot be met." In the Board's view, cutblock 7834 is not a situation where requirements could not be met – rather, it is a case where, in 2001, the licensee chose not to meet the requirements. The Board therefore concludes that section 36 does not apply. Furthermore, the Board interprets section 36 to mean that a report must be submitted to the district manager prior to a prescribed deadline for the requirement in question.

In the circumstances, the licensee could have chosen to ensure timely amendment of its prescription for cutblock 7834, to complete the prescribed treatments as legally required, or to explicitly notify the district manager that by implementing its revised windthrow strategy, it would place itself in non-compliance with its approved silviculture prescription.

It is impossible to determine how many of the windthrown trees would have remained standing in cutblock 7834 had the original pruning treatments been done by the deadline in the approved silviculture prescription. Windthrow treatments such as pruning and topping are meant to reduce the amount of windthrow, not eliminate it. Some degree of windthrow may have occurred regardless of treatment.

The licensee estimates that about one-half of the retained timber in cutblock 7834 has windthrown since harvesting was completed. The licensee has since salvaged 3.4 hectares of windthrown timber from the retention patches and cutblock edges. The cutblock now totals 39.6 hectares, of which 32.5 hectares is logged area and roads. The licensee calculates the remaining retention (about 5.8 hectares) to be just under 18 percent of the harvested area, with about half of the retained trees still standing and 53 percent of the harvested area within a tree height of the base of retained trees. Board staff did not confirm these figures in the field, but used available maps to cross-check the licensee's computations.

According to the licensee's approved plan, the timber retained during harvest of cutblock 7834 was intended to enrich the re-established stand with structural features and influences that would otherwise be absent in the harvested area. The remaining standing, windthrown and wind-damaged trees left on-site still have ecological value as structural components, and so continue to serve that intended purpose. Neither the Code nor the licensee's plan sets out an explicit condition that retained trees that are subsequently windthrown are to provide a similar ecological function to that of the original standing trees. Consequently, even with the windthrow and some salvage, cutblock 7834 meets the retention standards of the Code and the objectives set out in the licensee's originally approved plan.

But, to the complainant, the degree and rapidity of windthrow in cutblock 7834 looked like an undesirable result. The fact is, neither the Code nor the licensee's plan for cutblock 7834 specify how many or for how long retained trees should stand post-harvest. In the absence of an explicit statement otherwise, the Board interprets that trees left standing are intended to remain standing for some time, presumably long enough to assure that the pre-harvest ecological attributes of standing structure, such as older-canopy complexity and upper-canopy diversity, are not rapidly diminished.

However, the reality is that all trees left behind will not remain upright for a full rotation. Some will die, some will break, and some will blow down as time passes, thus contributing other structural features to harvested areas. For these reasons, it is important for a licensee, where windthrow is expected, to clearly state in its plans both the purpose of retained trees and the anticipated degree of windthrow. In this matter, the licensee concurs with the Board. The plan for cutblock 7834 would have been clearer had it contained added detail about the expected occurrence of windthrow.

In the Board's view, the designed layout of retention patches in cutblock 7834 contributed to the degree of eventual windthrow. The licensee told the Board that, in hindsight, there were too many small in-block retention areas given the cutblock's exposed location in the Walbran Valley, on a ridgeline, with two significant wind directions. The licensee, in learning from its experiences, assured the Board that if it designed the cutblock today, it would do so differently to improve windfirmness from the outset, probably by arranging fewer but larger retention patches more fully aligned with the wind. Another option would be to intentionally leave greater retention than required, in anticipation of the expected windthrow.

The Board notes that more trees were originally left on cutblock 7834 than the minimum required as an objective of the licensee's approved plan. While apparently not the licensee's intention at the time, the surplus retention probably assisted the licensee in meeting its objectives, considering the substantial windthrow and subsequent salvaging that occurred.

Cutblock 7834 was not well-designed to avoid windthrow, given its location on a ridgeline exposed to strong winds. However, the cutblock was planned to provide retention to a stated objective, in the manner of the day, and in compliance with the Code. Both the original prescription and the licensee's subsequent reviews of the approved windthrow treatments considered the potential risk of windthrow to forest resources. The licensee did fail to comply with the Code by modifying its windthrow treatments before those modifications were approved but, despite an extraordinary amount of windthrow followed by salvage of damaged timber, the licensee still met its planned objectives for the cutblock. The licensee's non-compliance was therefore procedural and not significant; neither the non-compliance nor the windthrow resulted in detectable damage to forest resources.

Cutblock 7834 was not well-designed to avoid windthrow, but was planned to provide retention to the standard of the day and in consideration of the risk of windthrow. The Board found the licensee in non-compliance with the Code for subsequently modifying

prescribed windthrow treatments without approval, but the non-compliance was not significant and the licensee's planned objectives for the cutblock were met. Therefore, while not as effective concerning windthrow as it could have been, forest practices planning was adequate.

Government Enforcement

The complainant also asked the Board to consider whether government enforcement of the Forest Practices Code was adequate. Adequate enforcement, in the Board's view, is enforcement that reflects the potential impact on forest resources that would or did result from failure to comply with the Code.

The government enforcement process includes a review of approved plans for cutblocks. On the basis of risk to various resource values, MOF compliance and enforcement (C&E) staff assign a target number of field inspections to each approved cutblock; a minimum of one to a maximum of five. Field inspections promote compliance with the Code and identify problems with forest practices. If an inspection identifies a problem, there are a number of tools available to government to promote compliance. Actions might escalate in severity from advice to eventual prosecution.

C&E staff gave cutblock 7834 a low risk rating on the basis of risk to forest resource values. C&E assigned one field inspection to the cutblock. That inspection was done on October 18, 2001. The inspector noted some windthrow outside the cutblock. Other issues unrelated to windthrow were also noted and reported to the licensee. The inspector did not comment about the upcoming windthrow treatment deadline of October 31st. The compliance inspection took place before the pruning deadline; in other words, before non-compliance occurred.

C&E staff became aware of a potential non-compliance related to windthrow in cutblock 7834 in September 2002. The licensee's proposed amendment to the cutblock's silviculture prescription had identified that pruning obligations in 2001 had not been done. At the time, C&E was in the process of gathering information for several of the licensee's other cutblocks where similar potential non-compliance with prescribed windthrow treatments was suspected. C&E staff re-inspected cutblock 7834 in January 2003 to confirm that pruning was not completed.

Ideal inspection timing that reflects pruning deadlines and the onset of fall and winter winds would mean that C&E staff would have to visit all cutblocks with prescribed wind treatments in a very short time period, probably sometime during November. That may be impractical, especially if other risk factors dictate inspection at different times of the year. C&E inspections for cutblock 7834 were scheduled on the basis of overall risk to forest resources, district priorities and staff availability. The Board considers the risk-rating and timing of inspection for cutblock 7834 to have been reasonable. Once a potential non-compliance came to the attention of C&E, it was acted upon, by incorporating it into a broader ongoing investigation, which included further inspection of the cutblock. The broader C&E investigation is still in progress.

Government's enforcement of the Code concerning cutblock 7834 was appropriate.

Conclusions

1. Cutblock 7834 was not well-designed to avoid windthrow, but was planned to provide retention to the standard of the day and in consideration of the risk of windthrow. The Board found the licensee in non-compliance with the Code for subsequently modifying prescribed windthrow treatments without approval, but the non-compliance was not significant and the licensee's planned objectives for the cutblock were met. While not as effective concerning windthrow as it could have been, forest practices planning was adequate.

2. Government's enforcement of the Code concerning cutblock 7834 was appropriate.

Commentary

This complaint raised the broader issue of windthrow management on the windy west coast. Windthrow can have positive benefits, but can also create forest health concerns and can affect management of timber and non-timber forest resources such as water, fish and wildlife.

The *Forest Practices Code of British Columbia Act* and its regulations require that forest development plans include measures to protect forest resources. In the Board's view, such measures would include strategies to manage the potentially negative impacts of windthrow on forest resources, where windthrow is common and expected. Often, such as the case with cutblock 7834, licensees will also include prescriptions for windthrow management in cutblock-level plans.

The Board, after considering preliminary information from the investigation of cutblock 7834, decided to examine the licensee's windthrow management activities over its entire Franklin operating area, as well as government's enforcement of the Code concerning prescribed windthrow treatments in that area. The Board will report separately on the results of its expanded investigation.